



January 29, 2014

Ms. Sheila Desai  
Remedial Project Manager  
U.S. Environmental Protection Agency  
77 W. Jackson Blvd. (SR-6J)  
Chicago, Illinois 60604

**Subject: Technical Review Comments on Feasibility Study Report (Revision 1)  
Plainwell Mill Site, Operable Unit 7 of  
Allied Paper/Portage Creek/Kalamazoo River Site  
Plainwell, Allegan County, Michigan  
Remedial Action Contract (RAC) 2 No. EP-S5-06-02  
Work Assignment No. 141-RSBD-059B**

Dear Ms. Desai:

SulTRAC has reviewed the above-referenced document as part of its oversight activities regarding the Plainwell Mill Site in Plainwell, Michigan. As required by the Consent Decree, the draft feasibility study (FS) report dated June 2013 was prepared by Conestoga-Rovers & Associates, Inc. (CRA), for Weyerhaeuser Company (Weyerhaeuser), the responsible party for the site. The draft FS report presented remedial alternatives considered for implementation based on findings of the 2009 remedial investigation (RI) presented in the RI report dated June 2011. The U.S. Environmental Protection Agency (EPA) issued technical review comments on the draft FS report to Weyerhaeuser on November 1, 2013. In response to EPA comments, CRA submitted the revised FS report on behalf of Weyerhaeuser to EPA on December 23, 2013.

SulTRAC reviewed the revised FS report to assess its technical adequacy and to evaluate whether it addressed EPA comments on the draft FS report. Enclosed are SulTRAC's technical review comments on the revised FS document, and separate review comments on Appendices to the FS including the revised evaluation of risk-based concentrations for arsenic in soil (Appendix A), ecological risk assessment calculations (Appendix B), and revised evaluation of Part 201 exceedances in groundwater (Appendix C). In addition, SulTRAC performed spot checks of estimated remedial alternative costs (Appendix D) and has no further comments. The revised FS report addresses EPA comments on the draft remedial alternative cost estimates adequately.

If you have any questions about this submittal, please call me at (312) 201-7491.

Sincerely,

A handwritten signature in black ink that reads 'Jeffrey J. Lifka'.

Jeffrey Lifka, CHMM  
SulTRAC Project Manager  
Enclosures (4)

cc: Parveen Vij, EPA Contracting Officer (letter only)  
Mindy Gould, SulTRAC Program Manager  
Eric Morton, SulTRAC Human Health Risk Assessor  
David Homer, SulTRAC Ecological Risk Assessor  
Ray Mastrolonardo, P.G., SulTRAC Geologist  
Carol Nissen, P.E., P.G., SulTRAC Engineer  
File

**ENCLOSURE 1**

**TECHNICAL REVIEW COMMENTS ON FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(Three Pages)

**TECHNICAL REVIEW COMMENTS ON FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

Under Contract No. EP-S5-06-02, Work Assignment No. 141-RSBD-059B, SulTRAC was requested by the U.S. Environmental Protection Agency (EPA) to review the revised feasibility study (FS) report regarding the Plainwell Mill Site in Plainwell, Michigan. As required by the Consent Decree, the draft FS report dated June 2013 was prepared by Conestoga-Rovers & Associates, Inc., (CRA) for Weyerhaeuser Company (Weyerhaeuser), the responsible party for the site. The draft FS report presented remedial alternatives considered for implementation based on findings of the 2009 remedial investigation (RI) presented in the RI report dated June 2011. EPA issued technical review comments on the draft FS report to Weyerhaeuser on November 1, 2013. In response to EPA comments, CRA submitted the revised FS report on behalf of Weyerhaeuser to EPA on December 23, 2013. SulTRAC reviewed the revised FS report to assess its technical adequacy and whether the report adequately addressed EPA comments.

SulTRAC reviewed CRA's responses to EPA's comments on the draft FS report, and reviewed the revised FS report to evaluate whether the responses had been adequately incorporated into the revised document. Many responses were difficult to cross check with revisions because of mere statements that the text had been revised accordingly or references to sections of the draft FS report instead of the revised FS report. Each insufficient response or instance of revision to the document not appearing to match the response is presented below with reference to EPA's general or specific comment number (per EPA comments dated November 1, 2013). Two additional comments regarding revisions to the FS report also appear below.

First, the FS text refers to an iterative approach to arsenic remediation and states that soil verification sampling will accord with Michigan Part 201 requirements in "Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria" as applicable. Although additional information is presented in Appendix A, the FS text does not describe or explain the term "iterative approach." In addition, the text should state that soil verification sampling will comply with requirements specified in the Michigan Department of Natural Resources' (MDNR) Verification of Soil Remediation (Revision 1) guidance as applicable, and a complete reference to the guidance should be provided.

Second, the groundwater alternatives have been revised to include (1) no action and (2) institutional controls (IC). The text in the fifth paragraph on Page 166 states: “Natural attenuation of COCs would likely occur. Groundwater monitoring will be performed at the Site to evaluate and document the natural degradation of impacts from COCs across the site.” Based on this statement, the title of Alternative 2 should be revised to “institutional controls and monitored natural attenuation” because monitoring will be conducted to evaluate and document natural degradation of site contaminants.

1. **Response to EPA General Comment 10.** The response states that a discussion of the synthetic precipitation leaching procedure (SPLP) analysis and comparison to the Part 201 Generic Cleanup Criteria has been included in Section 1.2.4.2, and a discussion of how groundwater protection criteria including “failed” SPLP results are addressed through the alternatives appears in Section 3.2.1 of the revised FS report. A discussion of failed SPLP results was included in Section 1.2.4.2 but was not included in Section 3.2.1 as stated in the response. Section 3.2.1 should be revised to include a discussion of how groundwater protection criteria including “failed” SPLP results are addressed through the alternatives.
2. **Response to EPA General Comment 20.** The response states that required asbestos abatement is discussed in Section 4.0 of the revised FS report. A discussion of asbestos abatement was not included in Section 4.0 as stated in the response.
3. **Response to Specific Comment 4.** This comment pertains to text presented in Section 1.2.5 of the draft FS report. By addressing this comment, the revised FS report inadvertently now contains two sections titled Section 1.2.5 (Contaminant Fate and Transport and Baseline Human Health Risk Assessment). This organizational error should be corrected in Section 1.0 and in the table of contents.
4. **Response to EPA Specific Comment 9.** The comment requested addition of 40 *Code of Federal Regulations* (CFR) 761.61 to Section 2.1 as an applicable or relevant and appropriate requirement (ARAR). The response states that the FS report has been modified accordingly to address the comment; however, the changes do not appear in Section 2.1. Either the change described in the response should be made in Section 2.1, or further clarification is needed as to how this comment was addressed.
5. **Response to EPA Specific Comment 12.** The response states that Section 2.3 was revised to include implementation of a soil management plan during redevelopment activities. The revised FS report briefly mentions a soil management plan in Section 4.1.2. Discussion of a soil management plan (as well as most of the other information presented in the response to this comment) was not included in Section 2.3. Section 2.3 should be revised to include the relevant information provided in the response to this comment.
6. **Response to EPA Specific Comment 19.** The response states that specific information regarding ICs is presented in Section 4.1 of the revised FS report. This response is misleading because Section 4.1 refers only to Table 4.1 (IC matrix), and does not discuss or summarize ICs. To be consistent with the response, a discussion or summary of ICs should be provided.

7. **Response to EPA Specific Comment 29.** The response states that the reference to containment systems has been removed in the revised FS report. Section 5.3.3 (top of page 182 of the revised FS report) states that long-term effectiveness and permanence of all other alternatives (other than no action) depend on the design, operation, maintenance, and monitoring of the containment systems, and on compliance with ICs. Because only soil alternative 2 includes on-site containment, it is still not clear to what containment system soil alternative 3 refers. Either the text should be revised to clarify this matter, or the words “all other alternatives” should be revised accordingly.
8. **Response to EPA Specific Comment 30.** The response states that a discussion comparing costs (including operation and maintenance [O&M] costs) is incorporated in Section 5.3.7 of the revised FS report. A discussion of these costs was not included in Section 5.3.7 and should be provided.

**ENCLOSURE 2**

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX A TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(Two Pages)

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX A TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

SulTRAC reviewed Appendix A, “Revised Development of Risk-Based Concentrations for Arsenic in Soil Memorandum,” as well as revised Figures 3.1 through 3.40 of the revised feasibility study (FS) report. The responses to U.S. Environmental Protection Agency (EPA) comments on Appendix B (Note: this appendix was previously identified as Appendix B) are acceptable. However, additional specific comments regarding Appendix A and Figures 3.1 through 3.40 are presented below.

**SPECIFIC COMMENTS**

1. On various figures, many locations are not shown as requiring excavation despite identification of these locations with exceedances of arsenic’s risk-based concentration (RBC) in Tables 10, 11, and 12. For the most part, locations in this category are within the footprint of (1) existing buildings or (2) buildings that have been demolished (see Figure 3.40 – Buildings 9A, 9B, 9D, 9E, 9F, and 23). Tables 10, 11, and 12; Figures 3.1 through 3.40; and related text documenting and describing areas where soil excavation is proposed as part of one or more alternatives must be rendered consistent, or inconsistencies must be explained. Several specific issues that should be addressed in the notes/explanation include:
  - Figures and text should consistently and accurately identify locations with arsenic concentrations exceeding RBCs (listed in Tables 10, 11, and 12) that are not shown as proposed for excavation (Figures 3.1 through 3.40). Almost all of the figures that do not do so (for example, Figures 3.16, 3.26, 3.36, 3.38, and 3.40) include no notation or explanation as to why locations listed in Tables 10, 11, and 12 are not shown as proposed for excavation; each of these figures should include such a clear and accurate note/explanation regarding this. For example, although Figure 3.40 includes such a note, even this note, which states that all soil beneath demolished buildings (Buildings 9A, 9B, 9D, 9E, 9F, and 23) is assumed to remain (and, presumably not be excavated), is incorrect. (Note: it is unclear if the demolition of these buildings resulted in removal of building slabs and if any remaining slabs are intended to become engineered barriers that may require institutional controls [IC]). Figure 3.40 also includes numerous locations listed in Table 12 that are under Buildings 10, 11, 11A, 12, 15, 16, 17, 18, and 19, which are not proposed for demolition. All figures should be revised as noted above to provide a clear and accurate note/explanation as to why some soil locations are not proposed for excavation. (Note: Section 1.2.2.2 of the FS states that the above-listed buildings have been “designated as historical structures and are not anticipated to be demolished; however, will be redeveloped/renovated/reused”). Also, it is not clear why the footprint of a demolished building should provide any protection from or interruption of potential exposure to elevated arsenic concentrations in soil. The note on Figure 3.40 should be revised to justify retaining elevated arsenic concentrations in the footprint of a demolished building. The text of the FS addressing excavation alternatives must also include, at a minimum, an acknowledgement of retaining elevated arsenic concentrations in soil at locations under current, demolished, or future buildings, as appropriate.

- Each note/explanation should consider whether any building currently covering a location with arsenic concentrations exceeding an RBC has been factored into or considered as part of the site development plan. If the currently present building overlying elevated arsenic concentrations in soil will not be part of future development and is slated for future demolition, protection from potential exposure provided by the currently overlying building may not be present in the future, and the note/explanation must address this issue. Also, the explanation on Figure 3.40 that locations are in the footprint of demolished buildings is not sufficient. If the buildings have been demolished, future receptors may be exposed to elevated arsenic concentrations. The explanation on Figure 3.40 must be revised accordingly.
  - Notably, some locations within existing buildings are currently proposed for excavation, while other locations under the same building footprint are not proposed for excavation. As an example, on Figure 3.36, location SB-243 (under the footprint of Building 7) is proposed for excavation up to 2 feet below ground surface. Locations SB-240, SB-241, and SB-244 (also under the footprint of Building 7) are identified as exceeding an arsenic RBC in Table 12, but are not proposed for excavation. All notes/explanations should be comprehensive and consistent.
2. The revised FS should include a general discussion of proposed alternatives that will retain elevated arsenic concentrations in soil assuming protection from potential future exposure to this contaminated soil because it is beneath a building. This discussion is necessary so that future land use (beyond the currently proposed development) does not unknowingly uncover and expose elevated arsenic concentrations in soil at such locations. Also, use of existing buildings as an engineered barrier preventing or interrupting potential exposure to contaminated soils will require implementation of ICs, which the FS must address.



**ENCLOSURE 3**

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX B TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(One Page)

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX B TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

SulTRAC reviewed Appendix B, “Revised Ecological Risk Assessment – Step 3 – Refinement of Constituents of Potential Ecological Concern and Development of Ecological Remedial Action Objectives,” of the revised feasibility study (FS) report. The responses to U.S. Environmental Protection Agency (EPA) comments on Appendix C (Note: this appendix was previously identified as Appendix C) are acceptable, except as noted in the comments below.

**GENERAL COMMENT**

1. **Response to EPA Specific Comment No. 5. Appendix C, Section 6.** The original comment noted that the toxicity reference values (TRV) to be used in the risk assessment had been proposed and approved previously, and should be applied without modification. Otherwise, it would appear as if one is “shopping” for toxicity values. Also, as stated in the comment, discussion of the TRVs and their conservativeness should be part of the uncertainty section, and should not be used to calculate the final preliminary remediation goal (PRG). Therefore, the original comment should be addressed as requested.

The final conclusions of the risk assessment should present a weight of evidence discussion that takes into account all information available on whether the site poses significant risk to the ecological community at the site. This discussion should take into account the conservative nature of the calculations, risks identified by using either the no observed adverse effect level (NOAEL) or the lowest observed adverse effect level (LOAEL) TRVs, quality of the habitat present, and likely development of the site into a significant ecological habitat in the future.

**SPECIFIC COMMENT**

1. **Response to EPA Comment No. 11. Appendix C, Table 5.9.** The original comment requested the full reference for “U.S.EPA Region 9,” and the response noted that the table would be modified as requested. However, that requested information was not subsequently added to the table included in the revised report. This additional information should be added as requested.

**ENCLOSURE 4**

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX C TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

(Two Pages)

**TECHNICAL REVIEW COMMENTS ON  
APPENDIX C TO THE FEASIBILITY STUDY REPORT (REVISION 1)  
PLAINWELL MILL SITE, OPERABLE UNIT 7 OF  
ALLIED PAPER/PORTAGE CREEK/KALAMAZOO RIVER SITE  
PLAINWELL, ALLEGAN COUNTY, MICHIGAN**

SulTRAC reviewed Appendix C, “Revised Evaluation of Part 201 GSIC and DWC Exceedances in Groundwater Memorandum,” of the revised feasibility study (FS) report. General and specific comments regarding Appendix C are presented below. The responses to U.S. Environmental Protection Agency (EPA) general comments 1 through 4 on Appendix D (Note: this appendix was previously identified as Appendix D) were generally acceptable. Regarding the response to general comment 4, the remedial action groundwater monitoring program will be prepared at a later date; therefore, the assumptions presented in the response are acceptable for feasibility study (FS) cost estimating purposes but are not considered “final” requirements at this time.

The general comments below are based on a review of the revisions to Appendix C. In addition, because of the problems associated with the identified background data set, the upper tolerance limits (UTL) calculated using EPA ProUCL and Michigan Department of Environmental Quality’s (MDEQ) S3TM methods were not verified.

**GENERAL COMMENTS**

1. The information provided in Appendix C is incomplete. The text in Appendix C refers to Attachments A and B; however, Attachment B is not provided in the electronic version of the revised FS report, and neither attachment is provided in the hard copy version of the report.
2. The choice of background or upgradient wells is problematic, as stated in Specific Comment 2 below. Any comparison to or use of groundwater analytical results from these three wells (MW-3, MW-16, and MW-17) as representative of background groundwater conditions is highly uncertain. A distinction must be made between these wells as hydraulically upgradient (based on groundwater elevations) and these wells as representative of background conditions (not potentially impacted by site contaminants). Therefore, based on the information presented in the remedial investigation and revised FS report (specifically Appendix C), background groundwater concentrations have not been adequately established for the site. Revision of Appendix C thus should occur to remove the current background groundwater-related elements.

**SPECIFIC COMMENTS**

1. **Section 3.0, Page 2, Paragraph 2.** The text states, “This concentration is well below the MDEQ screening level for mercury of 0.2 microgram per liter (µg/L) for venting to groundwater presented in MDEQ’s policy and Procedures Number: 09 014....” Because the identified policy pertains to the

groundwater/surface water interface (GSI), the sentence should be revised to read "...venting to surface water [from groundwater]...."

2. **Section 5.0, Page 4, Paragraph 2.** Monitoring wells MW-3, MW-16, and MW-17 were identified as upgradient monitoring wells, principally because these wells are "considered to be upgradient of historical operations at the Site based on groundwater flow direction." While these three wells may be hydraulically upgradient of the main plant buildings and site operations based on groundwater flow maps, all three of these wells are within areas proposed for soil excavation (for example, see Figure 3.40). Soil near all three well locations has elevated concentrations of arsenic (one of the contaminants of concern [COC] identified for development of background concentrations) and other metals. Additionally, as stated in Appendix C, well MW-3 has the highest reported mercury concentration in groundwater at the site, as well as groundwater concentrations of aluminum and lead exceeding Part 201 drinking water criteria (DWC). Well MW-16 is within an area where excavation is to occur partly because of presence of elevated polychlorinated biphenyl (PCB) concentrations. Altogether, locations of all three wells within areas proposed for soil excavation suggests strongly that these wells may be within areas impacted by site operations, despite their locations hydraulically upgradient of the main plant buildings and operational areas. Therefore, reliance on statistics based on constituent concentrations in groundwater from these three wells is questionable at best. Establishing regional background groundwater concentrations may require installation of off-site groundwater wells or access to groundwater analytical results from off-site locations obtained by others. As noted in General Comment 2, Appendix C in general and Section 5.0 in particular should be revised to remove the current background groundwater-related elements.
3. **Section 5.0, Page 4, Paragraph 2.** A complete reference should be provided for the citation "MDEQ, 2002."
4. **Section 5.0, Page 5, Paragraph 1.** The text introduces the procedure of subtracting background groundwater concentrations calculated using EPA and MDEQ methodologies from concentrations measured at on-site groundwater wells. Use of such "net" results is generally considered unacceptable. Receptors are potentially exposed to total groundwater concentrations, not only that portion found to exceed background. Similarly, total groundwater concentrations and not simply site-related concentrations may discharge to surface water. Also, as stated above, calculations of "background" concentrations by use of results from wells very likely to have been impacted by the site are highly uncertain and problematic. Appendix C should be revised to remove the presentation, discussion, and use of such a "net" groundwater approach.